



NASA Technical Standards Program

NASA Technical Standards Program Overview

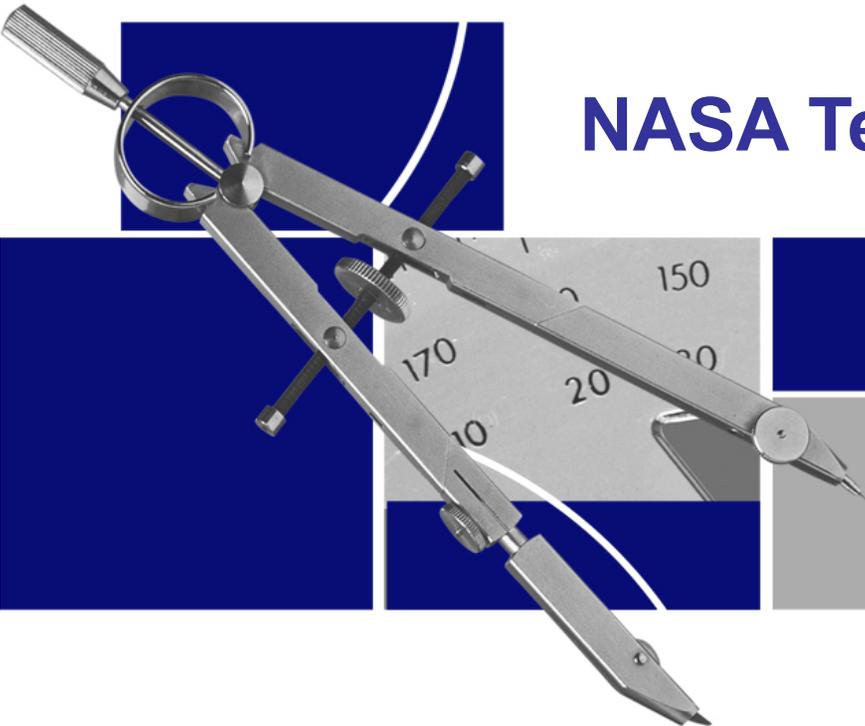
October 17, 2012

START with Standards

<https://standards.nasa.gov>

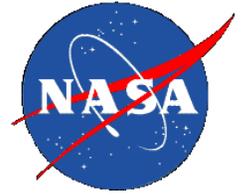
Adam West

Program Executive, NASA Technical Standards Program, Office of the Chief Engineer, NASA Headquarters.

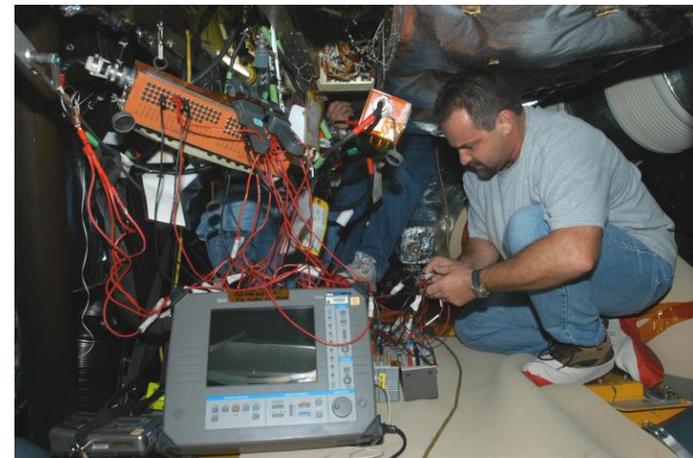




NASA Technical Standards Program

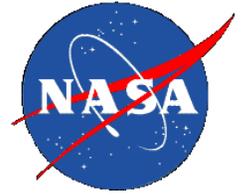


To provide the NASA community with standards, tools, and best practices desired to achieve technical excellence and further mission success



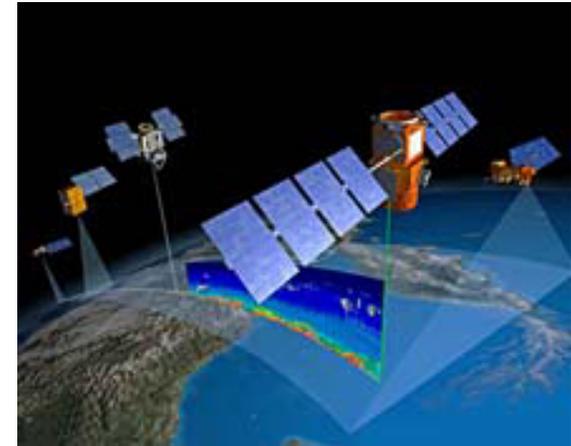


NASA Technical Standards Program



Goals

- Develop a suite of collaborative tools to:
 - Enhance the engineering capabilities across the Agency
 - Support the use of technical standards on NASA Programs in the systems requirement process
 - Augment NASA's use and support of the adoption of non-Government Voluntary Consensus Standards by making them available from a single source,
 - Provide notifications on changes, updates, and revisions of existing Technical Standards,
 - Provide information on engineering lessons learned, best practices, and experiences

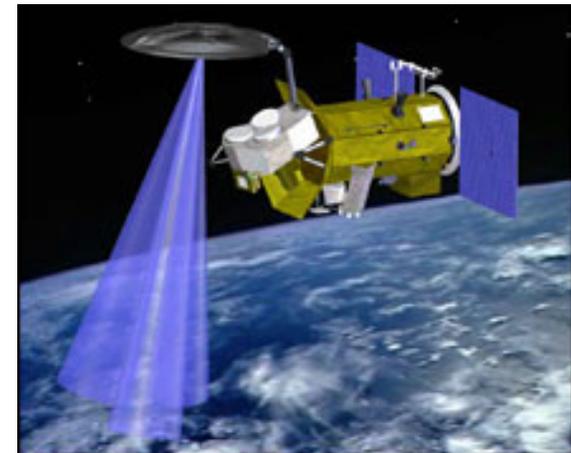


Objectives

- Provide more commonality with industry practices
- Improve interoperability within Centers and Agency
- Provide access for all <nasa.gov> users to full text standards from over 370 sources at <https://standards.nasa.gov>

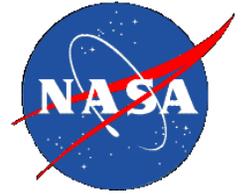
Authority

- OMB Circular A-119, “Federal participation in the development and use of Voluntary Consensus Standards
- NPD 7120.4, NASA Engineering and Program/Project Management Policy
- NPR 7120.10, Technical Standards for NASA Programs and Projects





NASA Technical Standards Program



OMB Circular A-119, Federal participation in the development and use of Voluntary Consensus Standards

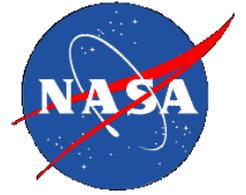
- Adopt the use of voluntary consensus standards in lieu of Government-unique standards except where inconsistent with law or otherwise impractical
- Agency technical standards can be developed when non-Government standards do not exist or meet NASA unique needs
- Agencies must consult with voluntary consensus standards bodies, both domestic and international, and must participate with such bodies in the development of voluntary consensus standards when consultation and participation is in the public interest and is compatible with their missions, authorities, priorities, and budget resources

NPD 7120.4, NASA Engineering and Program/Project Management Policy

- Provides the statement of policy and responsibilities for all of the management and engineering disciplines under the purview of the Office of the Chief Engineer



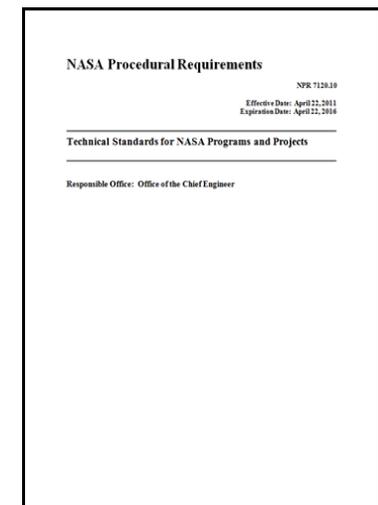
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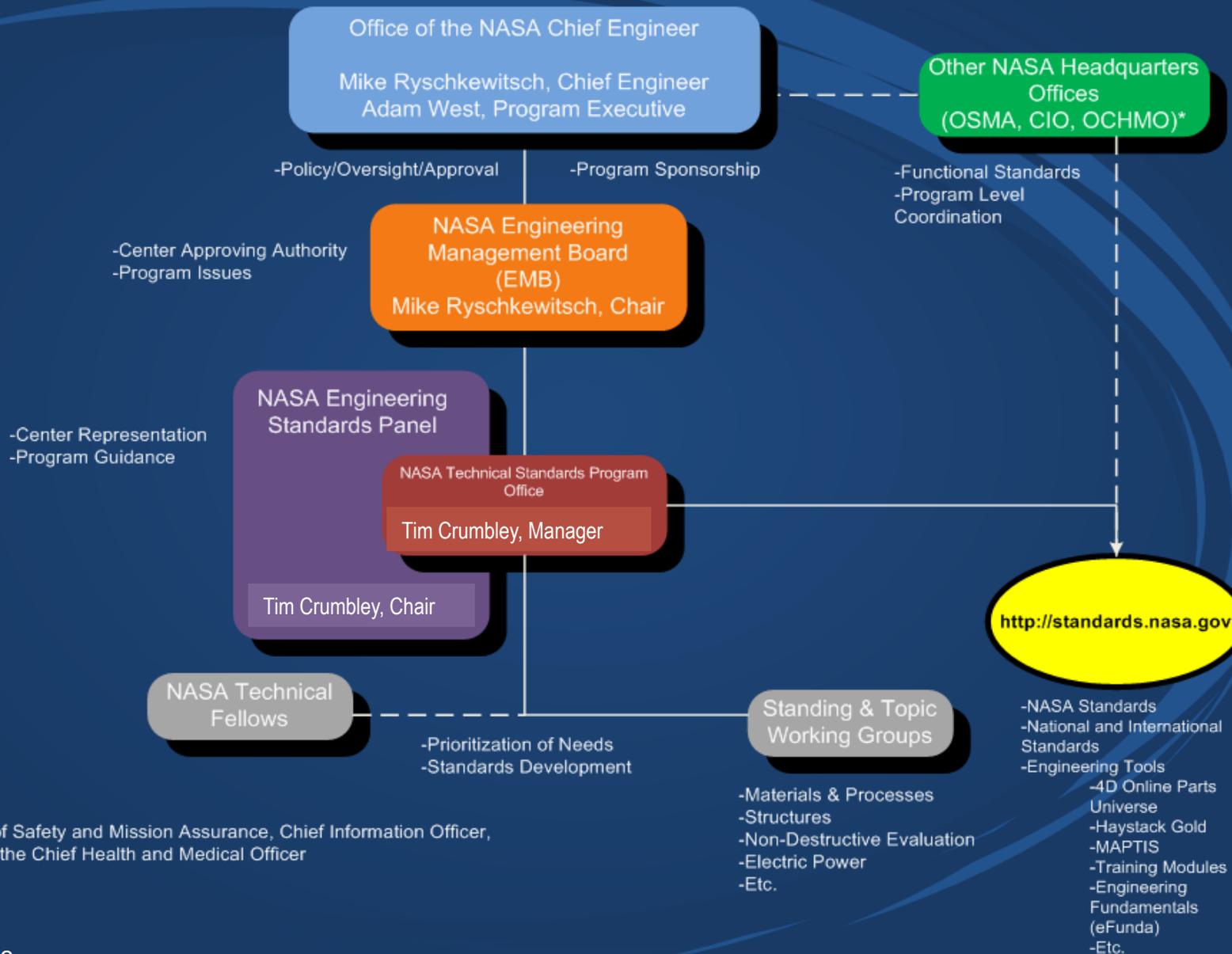
NPR 7120.10, Technical Standards for NASA Programs and Projects

Purpose:

- To support the implementation of the standards aspects of the parent NASA Policy Directive (NPD) 7120.4 and to establish responsibilities, requirements, and processes for:
 - Developing NASA technical standards, complying with Federal requirements for participating in the development of voluntary consensus standards and designating NASA-endorsed technical standards
 - Selecting and using technical standards as program/project requirements, encouraging commonality in use across NASA programs and projects, and mandating (S&MA) use of specific technical standards when warranted



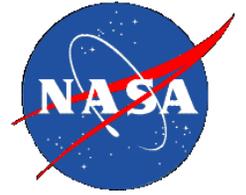
NASA Technical Standards Program Structure



* Office of Safety and Mission Assurance, Chief Information Officer, Office of the Chief Health and Medical Officer



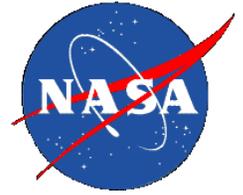
NASA Engineering Standards Panel



NESP CHAIR	Tim Crumbley
NESP EXECUTIVE SECRETARY	Ashley Shinkunas
<i>CENTER REPRESENTATIVES</i>	
ARC	Don Mendoza
DFRC	Edward Teets
GRC	David Carek
GSFC	Jonathan Root/Joe Wonsever
JPL	David Oberhettinger/Dan Plaskon
JSC	Hahn Nguyen
KSC	Franci Hamaker
LaRC	Richard Foss
MSFC	Dennis Griffin
NESC	Mark Terrone/Vicki Regenie
SSC	Bill St. Cyr/Clifton Arnold
WSTF	Ben Greene/Regor Saulsberry
<i>HQ REPRESENTATIVES</i>	
OCE (Program Executive)	Adam West
OSMA	Alfredo Colon
OCHMO	Dave Liskowsky
OCIO	Will Peters



NASA Standards and Technical Assistance Resource Tool (START)

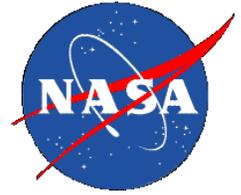


The screenshot shows the NASA Standards and Technical Assistance Resource Tool (START) website. At the top, there is a navigation bar with the NASA logo, the text 'National Aeronautics and Space Administration' and 'NASA Technical Standards Program', a search bar, and links for 'Visit NASA.gov' and 'Contact Us'. Below this is a large banner with the text 'Standards and Technical Assistance Resource Tool START' and an image of a rocket launch. A secondary navigation bar contains links for 'Technical STANDARDS Document Search', 'Supporting Documents', 'User Guidance Modules', 'Feedback', and 'Logout'. The main content area is divided into three columns. The left column is a 'NTSP NASA Access Menu' with links for 'Welcome', 'Technical Standards Search', 'Endorsed Standards', 'NASA Developed Standards', 'NASA Directives', 'GSFC Standards', 'JPL Engineering Standards Office', 'JSC Documents', 'KSC Documents', 'MSFC Documents', 'Center Document Indices', 'Engineering Tools', 'Standards Organizations', 'NASA Engineering Standards Panel (NESP) Members', 'Lessons Learned', and 'NASA Engineering Network'. The middle column is titled 'Welcome to Standards And Technical Assistance Resource Tool (START)' and contains a welcome message, a list of services provided, contact information for Tim Crumbley, Manager of the NASA Technical Standards Program, and a search form with fields for 'Document Number' and 'Title / Keyword(s)', along with 'Submit' and 'Reset' buttons. The right column is titled 'STANDARDS NEWS' and lists several news items, including 'Assurance of Standards Copyright Compliance', 'NASA-STD-5020, "Requirements for Threaded Fastening Systems in Spaceflight Hardware"', 'NASA-STD-6012, "Corrosion Protection for Space Flight Hardware"', 'AIAA S-119 Added to Endorsed List', and 'Approval of Revised Standard, Specification, and Handbook Template Instructions'. The footer of the page indicates it is 'Powered by IHS, Inc.'.

- **START is a one-stop shop for NASA engineers**
 - Offers Agency users a single point of instantaneous access to ~1.6M Standards/Handbooks/Specifications plus engineering tools, reducing research time, streamlining workflow, and avoiding unnecessary costs
 - eAuthorization for the NASA Standards website
 - Promotes best industry practices
 - Subscriptions to 46 different Standard Development Organizations
 - Pay by the document (~370 sources)
- ~ 109K downloads in FY12
- **Watch Lists and Alerts**
 - Provides electronic notification of revisions for registered standards
 - Helps you verify that the documents you are using are current
- **Lessons Learned from Agency's Lessons Learned Information System (LLIS) are integrated / linked, as they become available, to applicable NASA technical standards, and application notes**
 - ~460 linked lessons
- **Feedback process in place for questions, comments, and continuous improvement of the system**
- <https://standards.nasa.gov>



NASA Technical Standards System



Technical Standards System

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Document Number Search

NASA-STD-5003
ASTM D 1217
A-A-461B REINST NOTICE
2
NASA-STD-5012
MIL-STD-461E

Search

Document Number:

nasa

Keyword(s):

Titles Abstracts

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Application Notes

Lessons Learned

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Advanced Filters

Documents: 1 - 20

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Results Per Page: 20

Watch Link

1 2 3 4 Next >

Search Results for:

Document Number: nasa

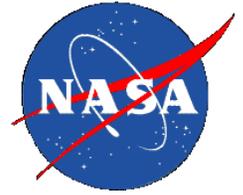
Applied Filters: [Active Status](#)

#	Document Number	Status	Date	Title	Tools
1.	View Details History NASA-GB-8719.13 NASA LL	Active	03/31/2004	NASA SOFTWARE SAFETY GUIDEBOOK (SUPERSEDING NASA-GB-1740.13-96)	Favorites (Add) Watch List (Add) SUNS Upd Notification
2.	View Details History NASA-HDBK-1001 NASA LL NASA IAN	Active	08/11/2000	TERRESTRIAL ENVIRONMENT (CLIMATIC) CRITERIA HANDBOOK FOR USE IN AEROSPACE VEHICLE DEVELOPMENT	Favorites (Add) Watch List (Add) SUNS Upd Notification
3.	View Details History NASA-HDBK-4001 NASA LL	Active	02/17/1998	ELECTRICAL GROUNDING ARCHITECTURE FOR UNMANNED SPACECRAFT	Favorites (Add) Watch List (Add) SUNS Upd Notification
4.	View Details History NASA-HDBK-4002 NASA LL	Active	02/17/1999	AVOIDING PROBLEMS CAUSED BY SPACECRAFT ON-ORBIT INTERNAL CHARGING EFFECTS	Favorites (Add) Watch List (Add) SUNS Upd Notification
5.	View Details History NASA-HDBK-5010	Active	05/24/2005	FRACTURE CONTROL IMPLEMENTATION HANDBOOK FOR PAYLOADS, EXPERIMENTS, AND SIMILAR HARDWARE	Favorites (Add) Watch List (Add) SUNS Upd Notification
6.	View Details History NASA-HDBK-6003 REV B	Active	02/21/2006	APPLICATION OF DATA MATRIX IDENTIFICATION SYMBOLS TO AEROSPACE PARTS USING DIRECT PART MARKING METHODS/TECHNIQUES	Favorites (Add) Watch List (Add) SUNS Upd Notification
7.	View Details History NASA-HDBK-7004 REV B NASA LL	Active	01/31/2003	FORCE LIMITED VIBRATION TESTING (SUPERSEDING NASA-HDBK-7004A)	Favorites (Add) Watch List (Add) SUNS Upd Notification
8.	View Details History NASA-HDBK-7005 NASA LL	Active	03/13/2001	DYNAMIC ENVIRONMENTAL CRITERIA	Favorites (Add) Watch List (Add) SUNS Upd Notification
9.	View Details History NASA-SPEC-5004 REV A NASA LL	Active	08/25/2003	WELDING OF AEROSPACE GROUND SUPPORT EQUIPMENT AND RELATED NONCONVENTIONAL FACILITIES (SUPERSEDING NASA-SPEC-5004)	Favorites (Add) Watch List (Add) SUNS Upd Notification
10.	View Details History NASA-STD-2202	Active	04/01/1993	SOFTWARE FORMAL INSPECTIONS STANDARD (REVALIDATED MARCH 29, 2001)	Favorites (Add) Watch List (Add) SUNS Upd Notification
11.	View Details History NASA-STD-2801	Active	05/01/1997	NASA STRATEGY FOR WINDOWS NT DOMAIN	Favorites (Add) Watch List (Add) SUNS Upd Notification
12.	View Details History NASA-STD-2802	Active	05/01/1997	INTRACENTER NETWORKING ARCHITECTURE, STANDARDS AND PRODUCTS	Favorites (Add) Watch List (Add) SUNS Upd Notification
13.	View Details History NASA-STD-2803	Active	05/01/1997	INTRANET STRATEGY	Favorites (Add)

Associated Lessons Learned



NASA Technical Standards Program



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- Advanced Planning and Analysis Division (APAD)
- Academy of Program/Project & Engineering Leadership (APPEL)
- Engineering Program/Project Management Division (EPPMD)
- NASA Engineering and Safety Center (NESC)

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- Annual Engineering Leadership Workshop

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NASA TECHNICAL STANDARDS

NTSP	ENDORSED STANDARDS	OTHER RELATED STANDARDS
<p>The NASA Technical Standards Program (NTSP) is sponsored by the NASA Chief Engineer. The Program's primary mission is to enhance the Agency's engineering capabilities and promote mission success by supporting NASA participation in the development of voluntary consensus standards and other Government agency standards to meet NASA's needs and developing NASA technical standards when existing technical standards do not meet or cannot be adapted to meet NASA's needs (refer to NPR 7120.10, Technical Standards for NASA Programs and Projects). The value of provided technical standards is enhanced by integrating lessons learned, application notes, and the Standards Update Notification System.</p> <p>The NASA Standards and Technical Assistance Resource Tool (START) provides access to standards from over 100 standards-developing organizations, including DoD and NASA. Communicating and sharing past scientific and technical experiences are crucial to the Agency's continued success. Specific experiences relative to technical standards are documented as lessons learned and application notes in START. Because changes to technical standards can have major impacts on the safety, performance, reliability, and cost of NASA's programs and projects, the Standards Update Notification System notifies specific users when registered technical standards change.</p> <p>Contacts: Tim Crumbley NASA Technical Standards Program Manager and Responsible Official Adam West NASA Standards Executive</p>		

RECENTLY PUBLISHED NASA ENGINEERING STANDARDS

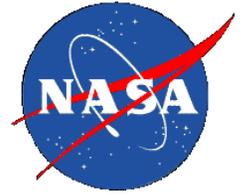
The following standards have recently been approved by the NASA Chief Engineer and are accessible via the NASA Standards and Technical Assistance Resource Tool (START) at <https://standards.nasa.gov>.

- NASA-STD-6012, "Corrosion Protection for Space Flight Hardware" — The purpose of this Standard is to describe the general corrosion protection requirements applicable to the surface treatment and finishing of space flight hardware.
- NASA-STD-5020, "Requirements for Threaded Fastening Systems in Space Flight Hardware" — The purpose of this Standard

<https://nen.nasa.gov/web/oce/standards>



OCE Endorsed Standards

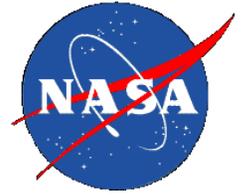


- Developed in an effort to provide greater flexibility and the promotion of commonality of technical standard usage throughout NASA's engineering community
- Based on recommendations from engineering discipline subject matter experts from across the NASA technical community
- Serves as a "pick list" to help ensure that proven engineering practices have not been overlooked in the selection of requirements for design, development, and operations.
- Adoption criteria:
 - Addresses common, high-level functions
 - Leverages best engineering practices representative of the most current proven technology
 - Widely accepted by engineering discipline experts from industry, military, academia, and NASA to ensure proven, consistent, common practices in the engineering discipline area are applied
 - The list does not include program or project-specific or Center documents, laboratory procedures or processes, or procurement specifications.
- Presently the OCE list contains 50 standards





Endorsed Standards



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NASA TECHNICAL STANDARDS

NTSP | **ENDORSED STANDARDS** | OTHER RELATED STANDARDS

In an effort to provide greater flexibility and the promotion of commonality of technical standard usage throughout NASA's engineering community, "OCE Mandatory Engineering Standards" have been transitioned to a list of "OCE Endorsed Engineering Standards." As such, the September 6, 2007 letter defining OCE mandatory standards application is cancelled.

[OCE Endorsed Engineering Standards](#)

[S&MA Endorsed Standards](#)

The list of "OCE Endorsed Engineering Standards" is authorized by the Office of the NASA Chief Engineer based on recommendations from engineering discipline subject matter experts from across the NASA technical community. It includes approved NASA Engineering Standards developed under sponsorship of OCE, plus those engineering standards developed by voluntary consensus standards (non-government) bodies and other Government agency standards-developing organizations. The list is expected to be revised whenever appropriate.

The "OCE Endorsed Engineering Standards" list should be used as a "pick list" to help ensure that proven engineering practices have not been overlooked by programs and projects in the selection of requirements for design, development, and operations.

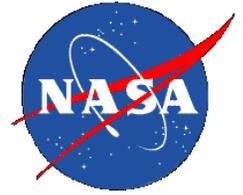
To be considered for inclusion, each standard must meet the following criteria:

1. Be approved, reviewed, and updated on a periodic basis; and
2. Address common, high-level functions that need to be addressed by projects across or within a given program or elements across or within a given project; and
3. Leverage best engineering practices representative of the most current proven technology; and
4. Be widely accepted by engineering discipline experts from industry, military, academia, and NASA to ensure proven, consistent, common practices in the engineering discipline area are applied; and
5. The list does not include program- or project-specific or Center documents, laboratory procedures or processes, or procurement specifications. Please note that all regulatory and public law requirements are endorsed by NASA.

Your support is critical to a successful implementation. Please direct suggested revisions to this list to [Adam West](#).



Engineering Tools



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- [Technical Capability Category Descriptions](#)

EXPLORE TOOLS



4DOnline Parts Universe
Parts Universe is an electronic components database comprised of millions of components from manufacturers worldwide



Ask an Expert
Select an engineering discipline or sub-discipline, submit a question, and receive a response from a vetted subject-matter expert. Questions and answers are archived for future access.



Collaboration Tools
Learn about NASA virtual conferencing via WebEx, Secure Instant Messaging via Jabber, and video and audio conferencing services from the NASA Integrated Services Network (NISN).



eFunda (engineering Fundamentals)
This commercial site includes a variety of Design, Process, Unit, Mathematical and Formula calculators and related tools.



Entry Descent Landing Repository
The content of the Entry Descent Landing Repository is dedicated to technical and engineering material to support the future design and analysis of EDL systems.



ESDU – Engineering Design Methods
Industry validated engineering design data, methods and associated software that helps solve design problems and reduce project cost.

OVERVIEW

The tools and resources offered from the NASA Engineering Network are intended to help engineers find and connect with subject-matter experts, use agency-wide collaboration tools, learn about the engineering organizations at the Centers, and assess technology readiness levels.

More tools and resources are added from time to time. Please use the form below to tell us about your favorite tool or engineering resource, even if it is available only locally at your Center.

Suggest a Tool/Resource
Please tell us about tools and resources you find particularly helpful.

Name

E-mail Address

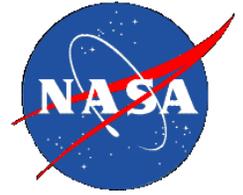
Tool or Resource Name

Description

<https://nen.nasa.gov/web/tools/home>



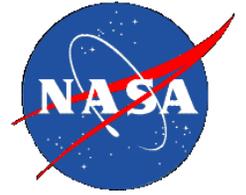
Engineering Tools



- Parts and Logistics Information (Haystack Gold)
 - An online parts research and logistics management solution that provides comprehensive information on millions of items contained in **military** supply systems, and related databases
 - Commercial part number to government National Stock Number cross-references
 - Alternate Sources of Supply
 - Pricing history (active and historical)
 - Supplier, Manufacturer and distributor information
 - Technical Parameters/Characteristics
 - Obsolescence information
- 4D Online Parts Universe
 - An **electronic** components database comprised of millions of components from manufacturers worldwide
 - It allows you to instantly access all aspects of critical component information, including alternate components, part status, manufacturer documentation, datasheets, application notes, timing diagrams, and more
- eFunda (engineering Fundamentals)
 - Includes a variety of design, process, unit, mathematical and formula calculators and related tools
- Engineering Design Methods (ESDU)
 - Industry validated engineering design data, methods and associated software that helps solve design problems and reduce project cost.



NASA Technical Standards Program



We strive to.....

- **Serve the needs** of the NASA engineering community
- **Educate, inform and guide** our programs and projects
- **Drive consistency** of standard usage across the Agency
- **Improve our efficiency and value** through our web site services
- **Adopt industry standards** to meet our missions
- **Develop standards** (where needed) to meet our unique mission requirements
- **Tie lessons learned** to our standards
- Use proven technical standards to **help ensure mission success!!**

